

Draft Rev. 2, June 9, 2011



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ASBESTOS ABATEMENT PROJECT DESIGN

Prepared for:

**Environmental Restoration, LLC
4870 Newport St.
Commerce City, CO 80022**

Project:

**Eaton Sugar Beet Factory
Eaton, Colorado**

May 28, 2011

Prepared by:

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Morrison, CO 80465
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**PROJECT SPECIFIC ASBESTOS ABATEMENT PROJECT
DESIGN**

**Eaton Sugar Beet Factory
Eaton, Colorado**

SIGNATURE PAGE

Project Name: Eaton Sugar Beet Factory
Eaton, Colorado

Location: Eaton Sugar Beet Factory
Eaton, Colorado

PREPARED AND APPROVED BY:

Signature:  Date: _____
Thomas D. Koch, Koch Environmental Health, Inc.
Asbestos Project Designer Cert No. 3805

Signature: _____ Date: _____
Asbestos Project Supervisor

PURPOSE

This asbestos abatement Project Design has been developed in support of asbestos abatement operations to be conducted at the Eaton Sugar Beet Factory in Eaton, Colorado (the Site). This document describes general and specific asbestos abatement procedures to be employed by Environmental Restoration, LLC (ERLLC) at the Site. It is the intent of this Project Design to describe procedures which allow ERLLC to conduct the removal of identified asbestos-containing materials and asbestos-contaminated items/materials within the Site in a safe and responsible manner in accordance with all applicable federal, state and local regulations. As personnel and environmental health and safety are of highest priority on this project, this Project Design has been developed such that it meets or exceeds the requirements of applicable regulatory agencies, including the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), and the Colorado Department of Public Health and Environment (CDPHE).

PROJECT DESCRIPTION

The purpose of this Project Design is to describe procedures and work practices for asbestos removal operations at the Site. The Site has been abandoned for approximately 10-12 years and portions of the Site are considered a Major Asbestos Spill as defined in Colorado Department of Public Health and Environment (CDPHE) Regulation No. 8, Part B (hereafter referred to as Regulation 8). Asbestos-containing pipe insulation, boiler and duct insulation, and other mechanical/process system insulations present in various locations of the Site have been damaged by weather, vandalism, and lack of maintenance since the Site was abandoned. Asbestos-containing debris has been spread and tracked uncontrolled throughout the majority of the Site, resulting in the Major Asbestos Spill. Asbestos sampling and characterization was performed by URS Operating Services, Inc. with descriptions and results detailed in the Analytical Results Report for the Eaton Sugar Beet Factory prepared by URS Operating Services, Inc. (URS) and dated 08/2010. Affected asbestos materials described in the Analytical Results Report include the following (quantities approximate):

ACM Type	Quantity (ft ²)	Location
Boiler Insulation	8,718	Boiler Building
Cementitious Flat	1,800	Mill Building
Friable Bulk Debris	80,275	Throughout Site with exception of southeast brick storage structure
Duct Insulation	4,500	Mill Building
Irregular Surface	18	Mill Building
Pipe Insulation	2,823	Mill Building
Shingle roofing	26,948	Mill Building
Transite siding (non-friable)	5,985	Mill Building
Vinyl Floor Tile	6,202	SW Office Building

Scope of Work

The scope of work for this project is the proper, safe removal and disposal of the above-referenced asbestos-containing materials and asbestos-contaminated items/materials from the subject property

All ACM shall be abated per the requirements of Section III.C, Project Requirements of Regulation 8, with the exception of approved variances or alternative removal methods, and in accordance with customary safe and responsible work practices. Any alterations and variances to asbestos abatement requirements established with Regulations 8 shall be applied for and approved by CDPHE prior to commencing work activities.

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Asbestos abatement and spill remediation will be conducted in the following distinct and separate work areas and in the sequence listed:

1. Southeast Brick Building (with smokestack)
2. East Metal-sided Boiler Building
3. Rooms between North End of Boiler Building and Kiln-dry building (TSI)
4. Main Mill Building, South end, 3rd and 4th floors
5. Main Mill Building, North end 4th floor
6. Main Mill Building, North end 3rd floor
7. Main Mill Building, North end, 1st and 2nd floors
8. Main Mill Building, South end, 1st and 2nd floors
9. West-side Attached 2-story Office Building
10. Northeast portion of top level, Kiln/dry building TSI component removal (30 linear feet, joints only contain ACM)
11. Southwest Detached 2-story office building (VAT only via Regulation No. 8 Appendix B Methods)

The work areas identified below are considered Major Asbestos Spill areas and will be decontaminated and abated in accordance with Section III.3.5.b for Major Asbestos Spills in Non-school Buildings/Facilities. Additionally, ERLLC will install critical barriers on the exteriors of windows, doors, and other openings in addition to an interior critical barrier to be installed on the same openings after the interior framework of the openings have undergone pre-cleaning. These areas are:

- Southeast Brick Building (with smokestack)
- Metal-sided Boiler Building
- West-side Attached 2-story Office Building
- Main Mill Building, all floors

NEGATIVE PRESSURE CALCULATIONS

A minimum of 0.02 (inches of water) negative pressure will be maintained in each full containment enclosure. KEH assumes a functional capacity of 1,400 cfm of each negative pressure machine. The following calculation applies to the work areas with respect to air changes per hour and the minimum number of negative air machines allowed for each work area. ERLLC will also keep on standby 2-3 additional negative air machines on standby for placement in portions of the work area that may have obstructed airflow (i.e. "dead air"). Prior to abatement, ERLLC and/or the AMS will evaluate potential dead air spaces with the use of smoke tubes to ensure proper placement of standby negative air machines.

Work Area 1 – SE brick building

- a. $93,765 \text{ ft}^3 / 1400 \text{ cfm} = 67$
- b. $67 / 15 \text{ minutes per air change} \times 1.1_{(\text{safety factor})} = 4.9 \text{ NAMs}$
- c. **5 NAMs**

Work Area 2 – East metal-sided boiler building

- a. $522,000 \text{ ft}^3 / 1400 \text{ cfm} = 372.9$
- b. $372.9 / 15 \text{ minutes per air change} \times 1.1_{(\text{safety factor})} = 27.3 \text{ NAMs}$
- c. **28 NAMs**

Work Area 3 – Rooms between North End of Boiler Building and Kiln-dry building (TSI)

- a. $6,000 \text{ ft}^3 / 1400 \text{ cfm} = 4.3$
- b. $4.3 / 15 \text{ minutes per air change} \times 1.1_{(\text{safety factor})} = 0.3 \text{ NAMs}$

c. 1 or 2 NAMs

Work Area 4 – South end Main Mill building, 3rd and 4th floors

- a. $756,000 \text{ ft}^3 / 1400 \text{ cfm} = 540$
- b. $540 / 15 \text{ minutes per air change} \times 1.1_{(\text{safety factor})} = 39.6 \text{ NAMs}$
- 40 NAMs**

Work Area 5 – North end Main Mill building, 4th floor

- a. $235,200 \text{ ft}^3 / 1400 \text{ cfm} = 240$
- b. $240 / 15 \text{ minutes per air change} \times 1.1_{(\text{safety factor})} = 17.6 \text{ NAMs}$
- 18 NAMs**

Work Area 6 – North end Main Mill building, 3rd floor

- a. $201,600 \text{ ft}^3 / 1400 \text{ cfm} = 144$
- b. $144 / 15 \text{ minutes per air change} \times 1.1_{(\text{safety factor})} = 10.5 \text{ NAMs}$
- 11 NAMs**

Work Area 7 – North end Main Mill building, 1st and 2nd floors

- a. $235,200 \text{ ft}^3 / 1400 \text{ cfm} = 168$
- b. $168 / 15 \text{ minutes per air change} \times 1.1_{(\text{safety factor})} = 12.3 \text{ NAMs}$
- c. 13 NAMs**

Work Area 8 – South end Main Mill building, 1st and 2nd floors

- a. $264,600 \text{ ft}^3 / 1400 \text{ cfm} = 189$
- b. $189 / 15 \text{ minutes per air change} \times 1.1_{(\text{safety factor})} = 13.9 \text{ NAMs}$
- c. 14 NAMs**

Work Area 9 – West-side attached two-story office building

- a. $28,272 \text{ ft}^3 \text{ per floor} / 1400 \text{ cfm} = 20.2$
- b. $20.2 / 15 \text{ minutes per air change} \times 1.1_{(\text{safety factor})} = 1.5 \text{ NAMs/floor}$
- c. 2 NAMs per floor**

Work Area 10 – NA (component removal approx. 30 linear feet of TSI with ACM at joints only)

Work Area 11 – Two-story detached southwest office building (VAT methods)

- a. $22,080 \text{ ft}^3 \text{ per floor} / 1400 \text{ cfm} = 15.78$
- b. $15.78 / 15 \text{ minutes per air change} \times 1.1_{(\text{safety factor})} = 1.1 \text{ NAMs/floor}$
- c. 2 NAMs per floor**

WORKER QUALIFICATIONS

All removal work will be performed by ERLLC, a licensed General Abatement Certificate (GAC) holder, utilizing properly trained and certified workers. All work will be performed in accordance with all applicable federal, state and local regulations, and will, at a minimum, conform to the requirements set forth in CDPHE Regulation #8, EPA 40 CFR Part 763, and OSHA Regulations 29 CFR 1910.1001 and 1926.1101.

NOTIFICATIONS AND SUBMITTALS

Pursuant to EPA Superfund Removal Directives, an emissions permit as required by Regulation 8 is not required for this project, although work will be conducted in accordance with other requirements of Regulation 8 and those customary to the asbestos abatement industry. Any variance requests pertaining to Regulation 8 requirements anticipated by ERLLC on this project shall be approved by CDPHE prior to commencement of abatement activities at the Site.

VARIANCE REQUESTS

ERLLC is submitting variance requests for consideration by CDPHE Asbestos Unit from the following requirements of Regulation No. 8. Variance requests will be made in compliance with Section III.4 of Regulation No. 8:

1. Section III.2b.ii Entry and Exit – ERLLC will employ the use of a detached decontamination trailer to be placed at the west-center entrance to the Main Mill building. Workers will exit work areas 1-10 through a one-stage decontamination chamber to remove the outer layer of protective coveralls and remove visible debris on, boots, etc. then will proceed through contaminated portions of the Site (that have not undergone decontamination/abatement yet) to the decontamination trailer. The decontamination trailer will be a three-stage decontamination center compliant with requirements of Section III.2.b.i.
2. Section III.V.2.b – This variance request will apply only to Work Area 10 at the top level of the Kiln-dry building. The TSI to be removed is near the roof of the structure, which is structurally unstable. The TSI is intact and the asbestos-containing portions are on the joints/wrap only. Based on the location and configuration, it is considered very dangerous to abatement personnel to construct a containment area in this work area. This portion of the structure is considered structurally unsound per Section III.W of Regulation 8. Pipes will be wetted, wrapped, and cut in accordance with Section III.V.2.a. with visual inspection clearance by a certified-AMS supported by bulk sampling of dust/debris immediately beneath the component removal work area.

Worker certifications/qualifications, work area sketches, negative pressure calculations, etc. will be provided and attached in the appropriate Attachment section of this abatement Project Design.

PROJECT MANAGER WAIVER

It is the intent of the Owner of the facility to apply for a waiver of the Project Manager requirements for this project per Section III.B.6.a of Regulation 8.

MATERIALS/EQUIPMENT

Materials and equipment to be used for asbestos abatement include the materials necessary to erect containment barriers, perform removal, perform cleaning tasks, and protect employees. Selection and use of PPE and respiratory equipment will depend on the results of exposure monitoring and the type and condition of asbestos being removed. Project-specific materials and equipment will be defined for each specific work area as necessary.

Typically, materials and equipment will consist of:

- Polyethylene sheeting (6 mil, 4 mil thicknesses, fire retardant as necessary);
- Industrial-strength duct tape and spray-adhesive;
- HEPA-filtered vacuums;
- Portable HEPA-filtered negative air machine(s) (NAMs) and associated exhaust tubing;
- Portable, three-chambered personnel decontamination unit with associated plumbing, heating, and filtration equipment

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- Appropriate warning signs; warning signs as required by OSHA will bear the following information:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA;

- Labeled waste disposal bags; warning labels as required by OSHA for all waste containers will bear the following information:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD;

- Appropriate PPE (for asbestos work, exclusive of anti-Cs) will include, but not be limited to, protective coveralls (i.e. tyvek), gloves, steel-toed boots, safety glasses/goggles and face shields, hard hats, and other gear as appropriate;
- Respiratory protection includes respirator face-piece and associated filtration cartridges. NOTE: ERLLC WILL ADHERE TO AND COMPLY WITH THE MOST CURRENT VERSION OF THE ERLLC RESPIRATORY PROTECTION PROGRAM. RESPIRATORY PROTECTION WILL, AT A MINIMUM, CONSIST OF HALF-FACE, NEGATIVE PRESSURE MASK WITH HEPA/P-100 CARTRIDGES (MAGENTA IN COLOR).
- Tools necessary to perform abatement will include the following:
 - manual scrapers
 - rubber dustpans and shovels
 - squeegees
 - ladders
 - airless sprayers
 - water spray pumps
 - retractable razor knives
 - nylon brushes
 - scrub pads
 - surfactant-amended water
 - encapsulant
 - others as necessary;
- OSHA-acceptable ladders, scaffolds, and associated safety equipment will be used in various work areas on this project.

WORK AREA ACCESS

ERLLC will control access to all regulated work areas to prevent unauthorized access by the use of warning signs, barricades, and controlled entry/exit logs. ERLLC will maintain a current log of all entering/exiting the work area and will post Asbestos Worker certification cards for all workers prominently at the job site trailer.

ERLLC will post a list of names and phone/radio numbers of key personnel, including the Supervisor and AMS, involved in the abatement project at the entrance to the clean room both inside and outside of any affected regulated work areas.

WORK PRACTICES

All ACM will be abated per the requirements of Section III.C of Regulation 8 and in accordance with customary safe and responsible work practices. The containments and abatement procedures shall meet or exceed all of the requirements contained within Regulation 8 with the exception of approved variances.

All operations conducted during this project will be done such that NO VISIBLE OR FUGITIVE EMISSIONS are released from the Site.

Work Practices and Procedures:

- A. Required Notifications – Pursuant to EPA Superfund Removal Directives, an emissions permit as required by Regulation 8 is not required for this project. ERLLC will notify the CDPHE Asbestos Unit regarding project start dates and schedules.
- B. All workers will be trained and certified as Asbestos Workers in the State of Colorado; a certified Asbestos Supervisor will be on site at all times during the abatement process.
- C. Personal Protective Equipment (PPE) and decontamination procedures used by Site personnel will conform to conventional procedures for asbestos removal (e.g. protective suits sans street clothes, three-stage decontamination, respiratory protection, level C protection, etc.)
- D. All work for this project will be done in accordance with the most current provisions of Regulation 8, including mobilization, enclosure/containment erection, asbestos abatement, disposal, and tear-down/demobilization.
- E. ERLLC will conduct abatement by erecting full containments in each work area where friable asbestos is being removed. Non-friable floor tile will be removed in secondary containment with established negative pressure per project requirements.
- F. Waste will be submitted to a landfill approved for accepting asbestos waste. ERLLC will provide the property Owner with waste manifests upon receipt from the landfill.

See the attached diagram for ERLLC proposed placement of the negative air machines (NAMs), waste load-out area, and personnel decontamination unit(s).

WORK AREA INTEGRITY & SPILL RESPONSE

ERLLC will take every step possible to erect and maintain the work areas such that no visible water or debris are released from the work areas during abatement. The work areas will be diligently inspected before, during, and after all work shifts and any deficiencies corrected immediately. It is the intent of ERLLC to sequence and conduct abatement in such a manner that spills that occur during abatement will affect areas of the plant that are already considered contaminated and subject to spill response provisions of Regulation 8. In the event that visible dust, debris, or contaminated liquids are released from the work area, these areas will be immediately cleaned up and necessary repairs to affected containment components will be corrected.

INDUSTRIAL HYGIENE CONTROLS

Final clearance visual inspections and air monitoring in accordance with CDPHE Regulation No. 8 after cleanup/demolition/abatement/encapsulation will be conducted by a CDPHE-certified Air Monitoring Specialist (AMS) in each work area. After a visual inspection indicates that all affected surfaces are acceptable to the standards established by the CDPHE and that all visible dust and debris has been removed, the project AMS will collect final clearance air samples.

Samples will be collected in an aggressive manner and will be analyzed via Phase Contrast Microscopy (PCM) on a 2-hour or 24-hour turnaround time basis. Should any samples exceed the CDPHE clearance level of 0.01 fibers/cubic centimeter (f/cc), the work area(s) will be re-cleaned and the final clearance procedures described herein will be repeated.

WASTE HANDLING

Waste Handling: All asbestos and asbestos waste shall be properly packaged, stored, and transferred to an acceptable landfill at the conclusion of the project. All disposal manifests shall be submitted to the OWNER once signed copies are received from the disposal facility.

HEALTH AND SAFETY PLAN

ERLLC will develop and maintain at the job site trailer a site-specific health and safety plan (HASP) that will include, at a minimum, the following:

RESPIRATORY PROTECTION PLAN

ERLLC shall maintain a copy of their most recent respiratory protection Plan on Site for review for the duration of the project.

EMPLOYEE TRAINING

All ERLLC personnel assigned to this project will hold and maintain current certifications for asbestos work (e.g. Asbestos Supervisor, Asbestos Worker) in accordance with CDPHE Regulation No. 8 requirements and those contained in 29 CFR 1926.1101. ERLLC will ensure that all personnel that wear respiratory protection will be trained, have current physicals for, and will be fit-tested for respiratory protection in accordance with the provisions of 29 CFR 1910.134.

MEDICAL SURVEILLANCE

In accordance with 29 CFR 1926.1101 and 1926.62, all ERLLC personnel will have current medical documentation as to their physical status, inclusive of pulmonary function and lung X-rays (if applicable), for asbestos workers and/or blood lead and ZPP levels for lead workers. ERLLC will ensure that all personnel that wear respiratory protection will be trained, have current physicals for, and will be fit-tested for respiratory protection in accordance with the provisions of 29 CFR 1910.134.

HAZARD COMMUNICATION

ERLLC Contracting shall maintain on Site their Hazard Communication Program and at all times, shall adhere to the requirements contained therein.

EMERGENCY PLAN

ERLLC will develop and post a copy of an emergency plan for the work of this project. This plan shall include, at a minimum, emergency contacts and telephone numbers, including the designated healthcare provider for workplace injuries.

APPENDIX A - WORK AREA SKETCH/FLOOR PLAN

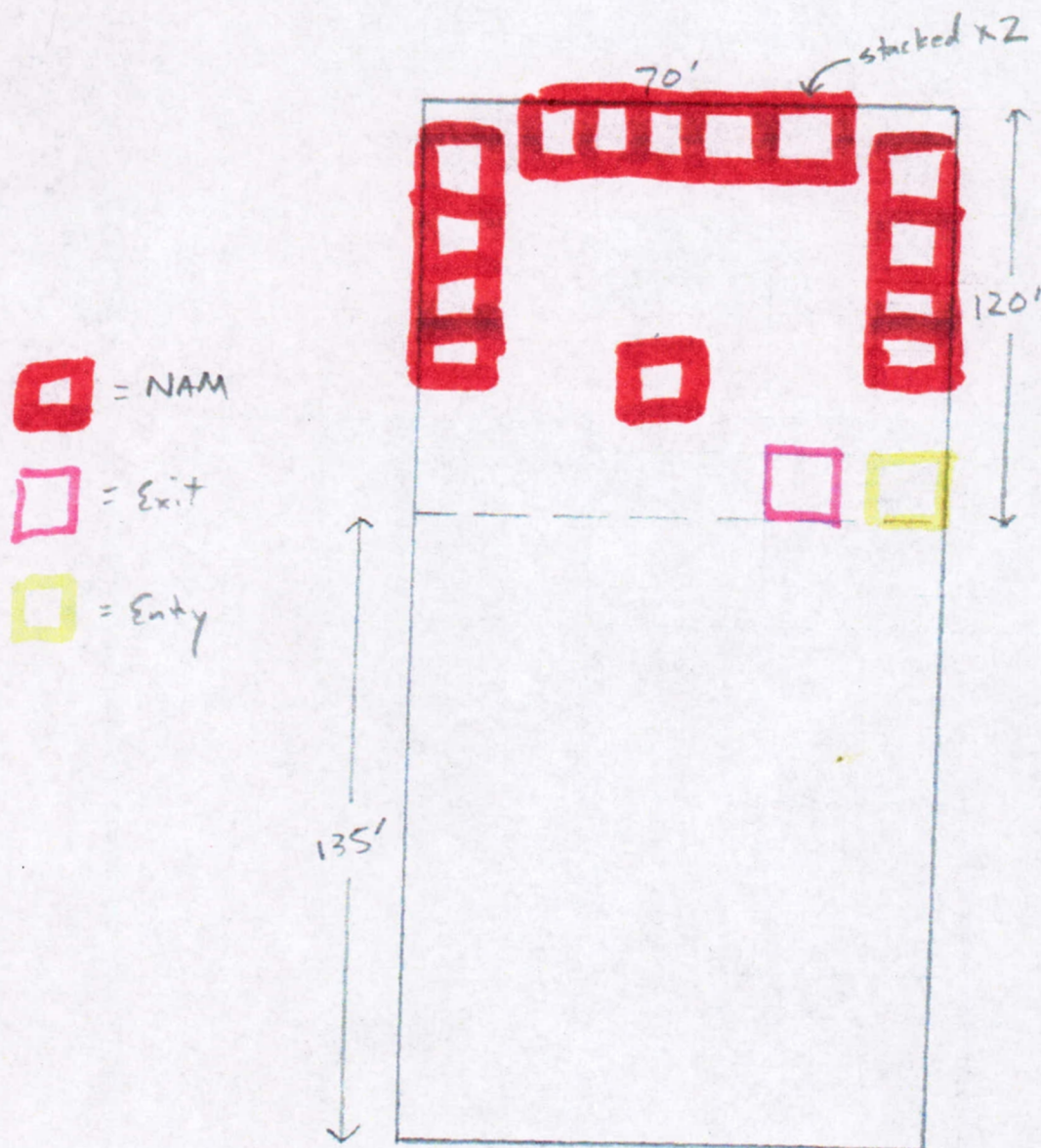
SUBJECT: Main Mill Building
North end, 4th floor



KOCH ENVIRONMENTAL HEALTH, INC.

JOB NO. _____

DATE: _____



$$\frac{235,200 \text{ ft}^3}{1400 \text{ cfm}} \left| \frac{4\Delta}{60 \text{ min}} \right| \times 1.1 = 17.6 \Rightarrow 18 \text{ NAM}_5$$

NOT TO SCALE

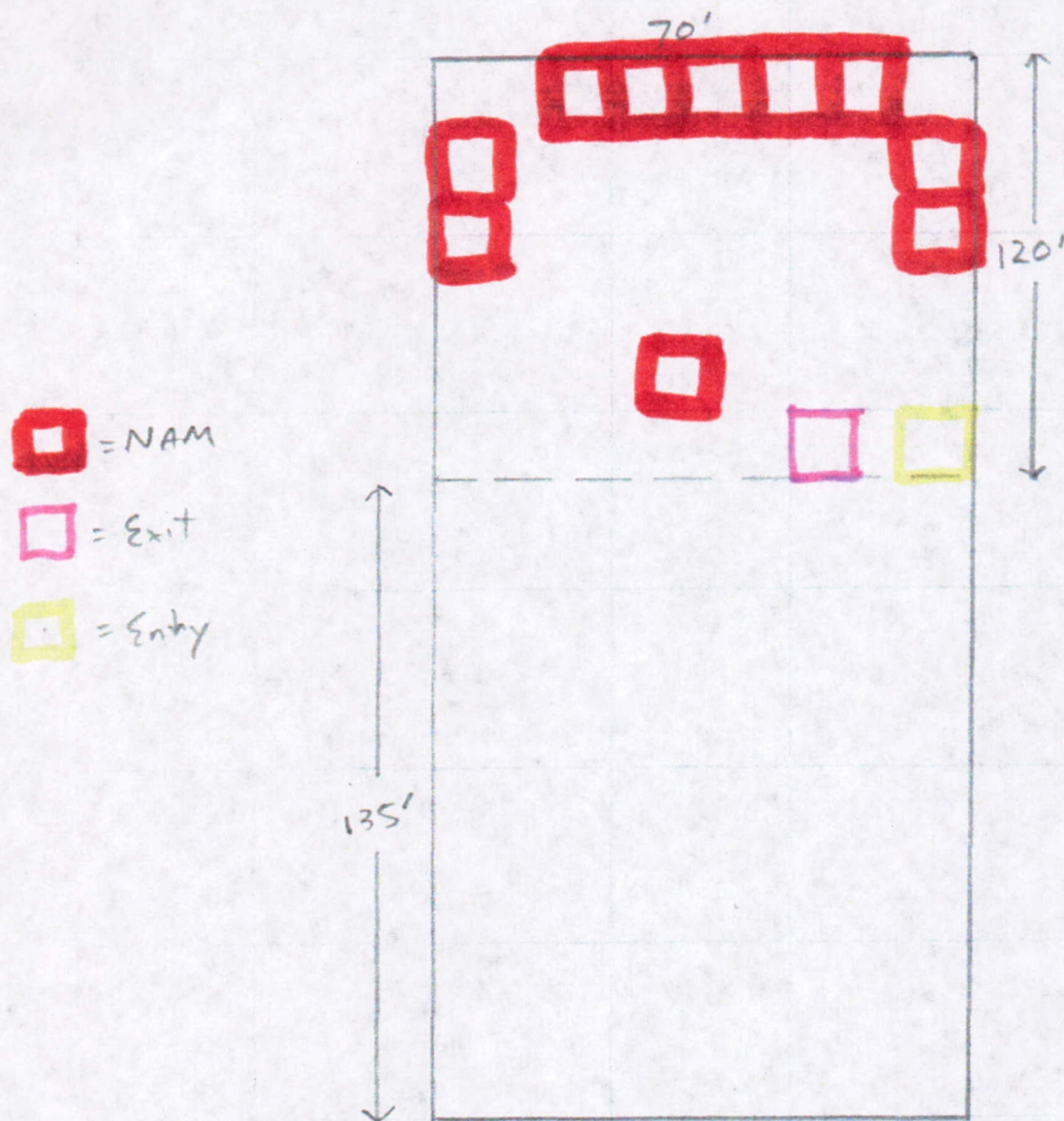
SUBJECT: Main Mill Building
North end, 3rd floor



KOCH ENVIRONMENTAL HEALTH, INC.

JOB NO. _____

DATE: _____



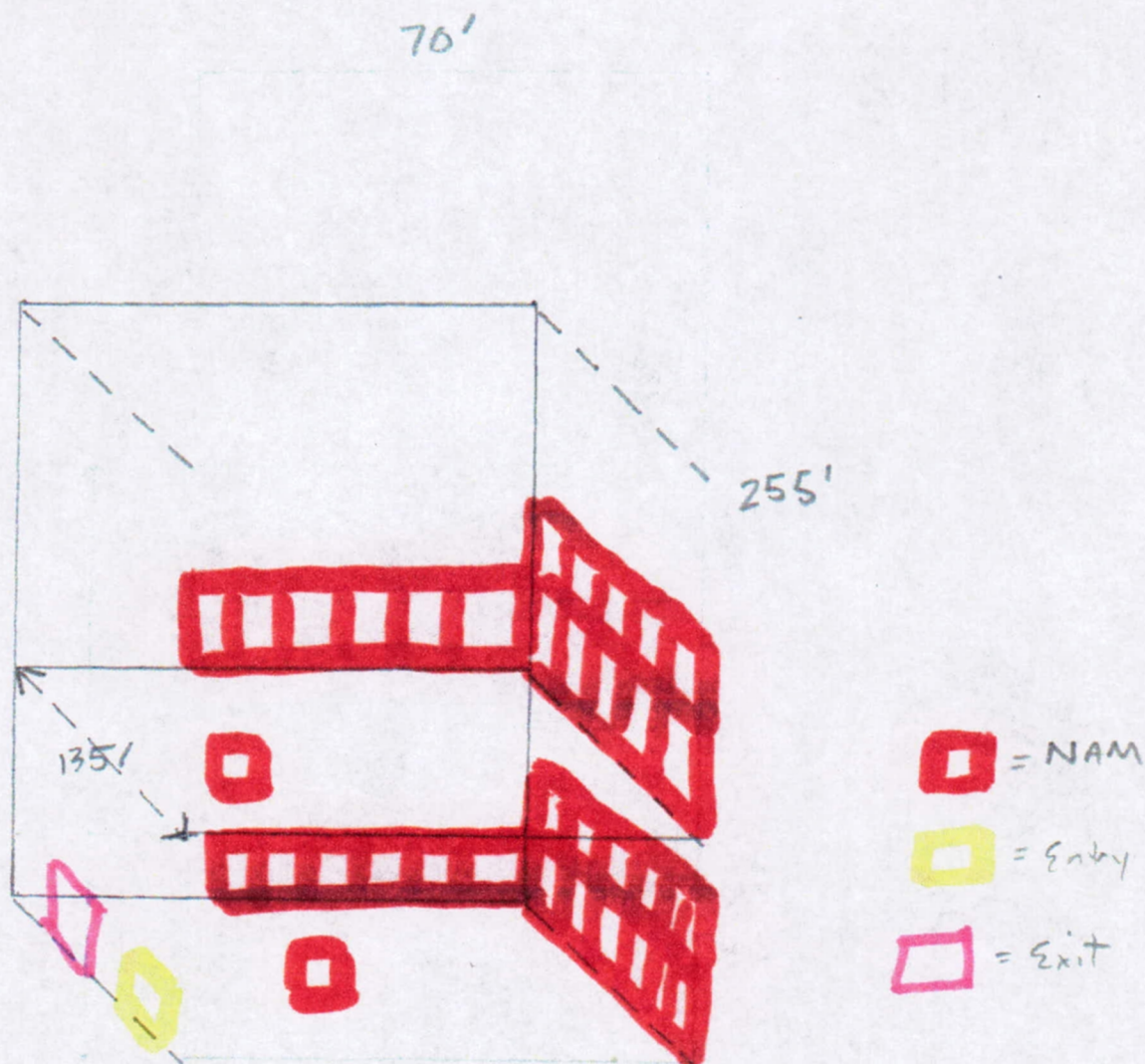
$$\frac{201,600 \text{ ft}^3}{1400 \text{ cfm}} \div \frac{4\Delta}{60 \text{ min}} \times 1.1 = 10.5 \Rightarrow 11 \text{ NAMs}$$

NOT TO SCALE

Main Mill Building
South End, 3rd & 4th floors



KOCH ENVIRONMENTAL HEALTH, INC.



$$\frac{756,000 \text{ ft}^3}{1400 \text{ cfm}} \left| \frac{4 \Delta}{60 \text{ min}} \right| \times 1.1 = 39.6 \Rightarrow 40 \text{ NAMs}$$

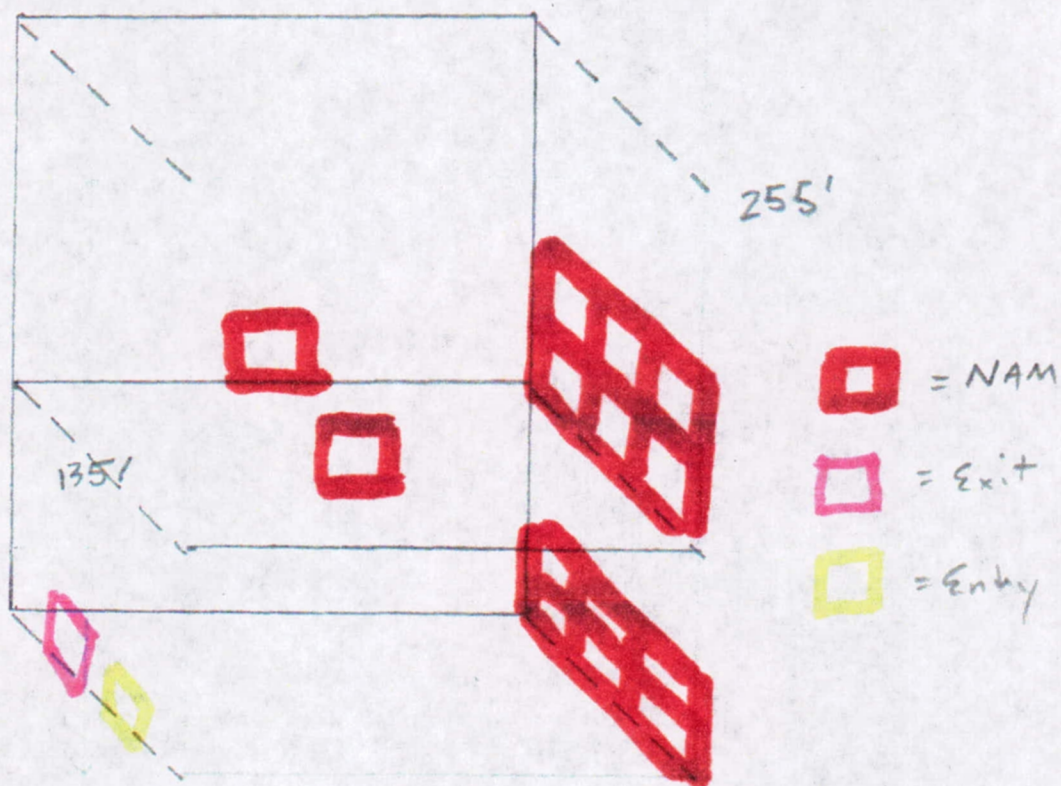
NOT TO SCALE

Main Mill Building
South End, 1st & 2nd floors



KOCH ENVIRONMENTAL HEALTH, INC.

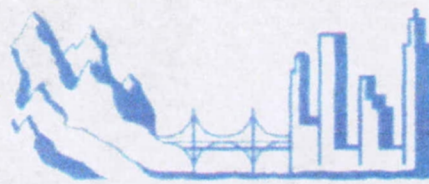
70'



$$\frac{264,600 \text{ ft}^3}{1400 \text{ cfm}} \times \frac{4\Delta}{60 \text{ min}} \times 1.1 = 13.9 \Rightarrow 14 \text{ NAMS}$$

NOT TO SCALE

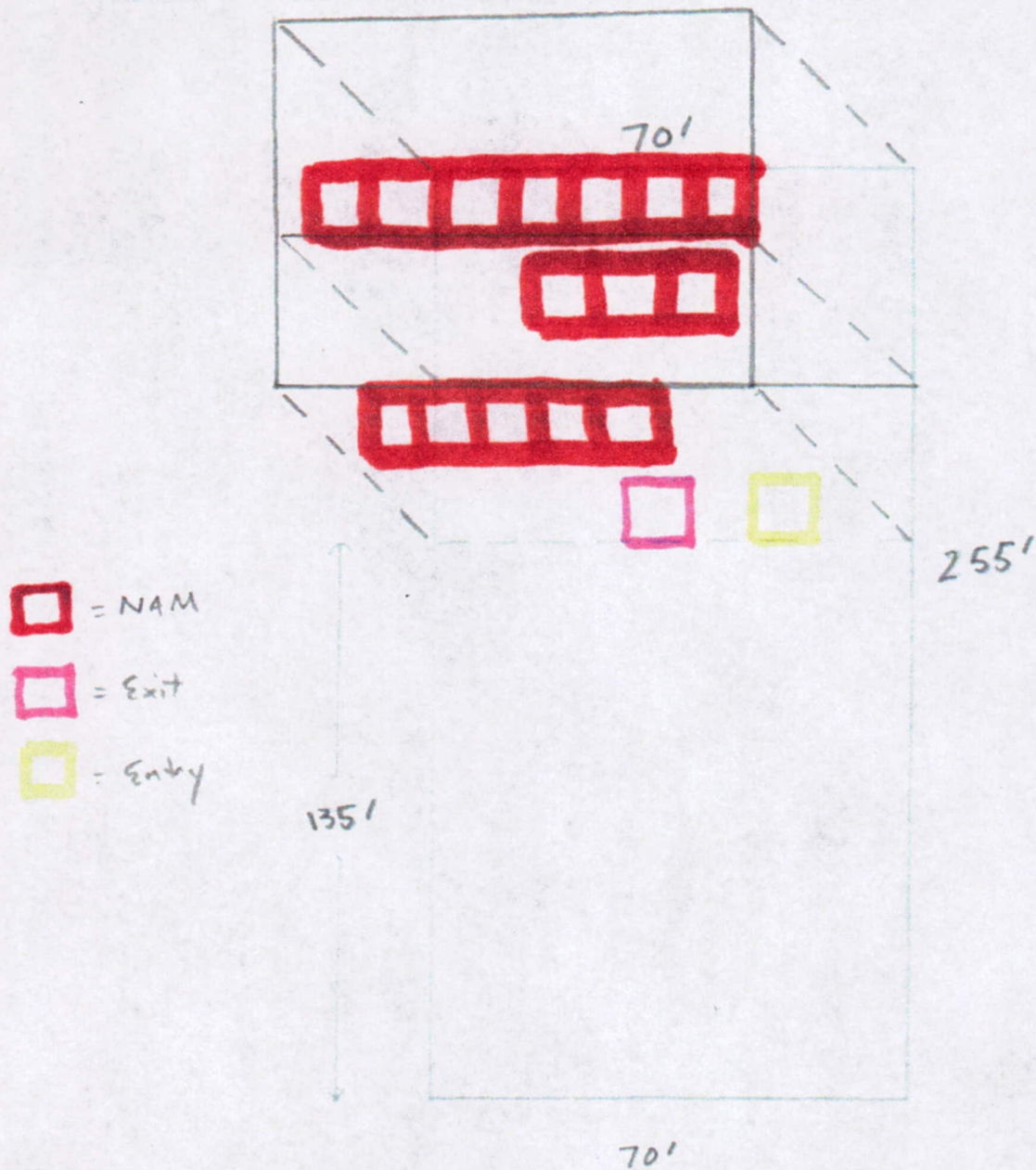
SUBJECT Main Mill Building
North End, 1st & 2nd floors



KOCH ENVIRONMENTAL HEALTH, INC.

JOB NO.

DATE



$$\frac{235,200 \text{ ft}^3}{1400 \text{ cfm}} \bigg| \frac{4 \Delta}{60 \text{ min}} \times 1.1 = 12.3 \Rightarrow 13 \text{ NAMs}$$

NOT TO SCALE


SUBJECT: Southeast Brick Building





KOCH ENVIRONMENTAL HEALTH, INC.

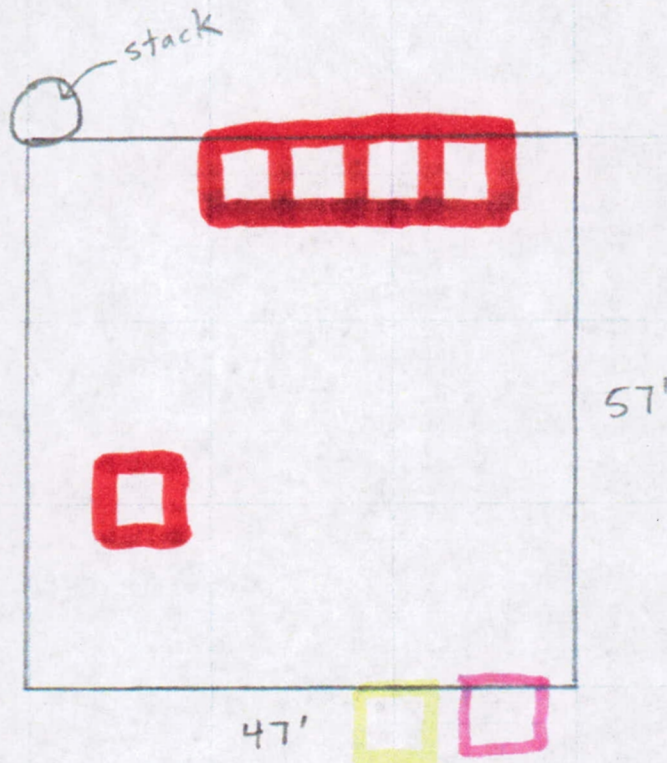
JOB NO. _____

DATE: _____

 = NAM

 = Exit

 = Entry



$$\frac{93,765 \text{ ft}^3}{1400 \text{ cfm}} \left| \begin{array}{l} 4\Delta \\ 60 \text{ min} \end{array} \right. \times 1.1 = 4.9 \Rightarrow 5 \text{ NAMs}$$

NOT TO SCALE


SUBJECT: East metal-sided Boiler Building





KOCH ENVIRONMENTAL HEALTH, INC.

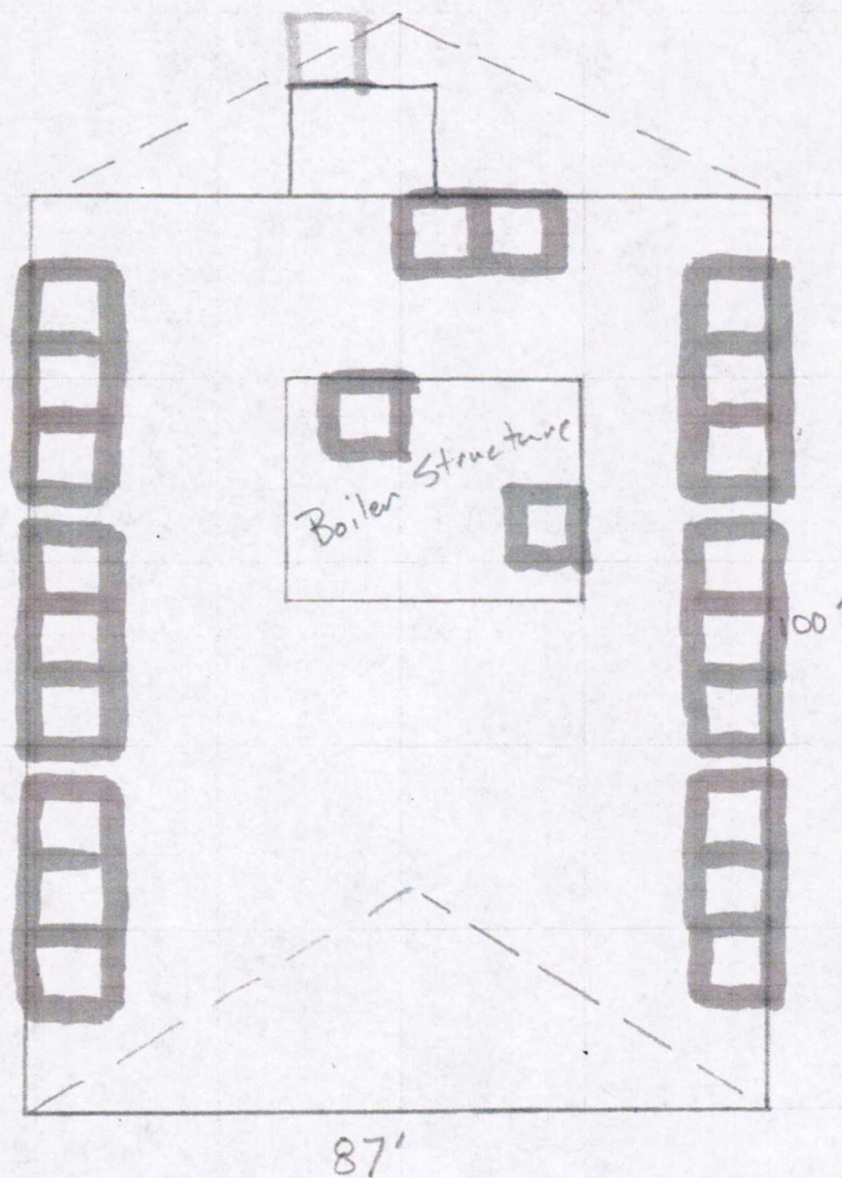
JOB NO. _____

DATE: _____

 = NAM

 = Exit

 = Entry



$$\frac{522,000 \text{ ft}^3}{1400 \text{ cfm}} \times \frac{4\Delta}{60 \text{ min}} \times 1.1 = 27.3 \Rightarrow 28 \text{ NAMs}$$

NOT TO SCALE

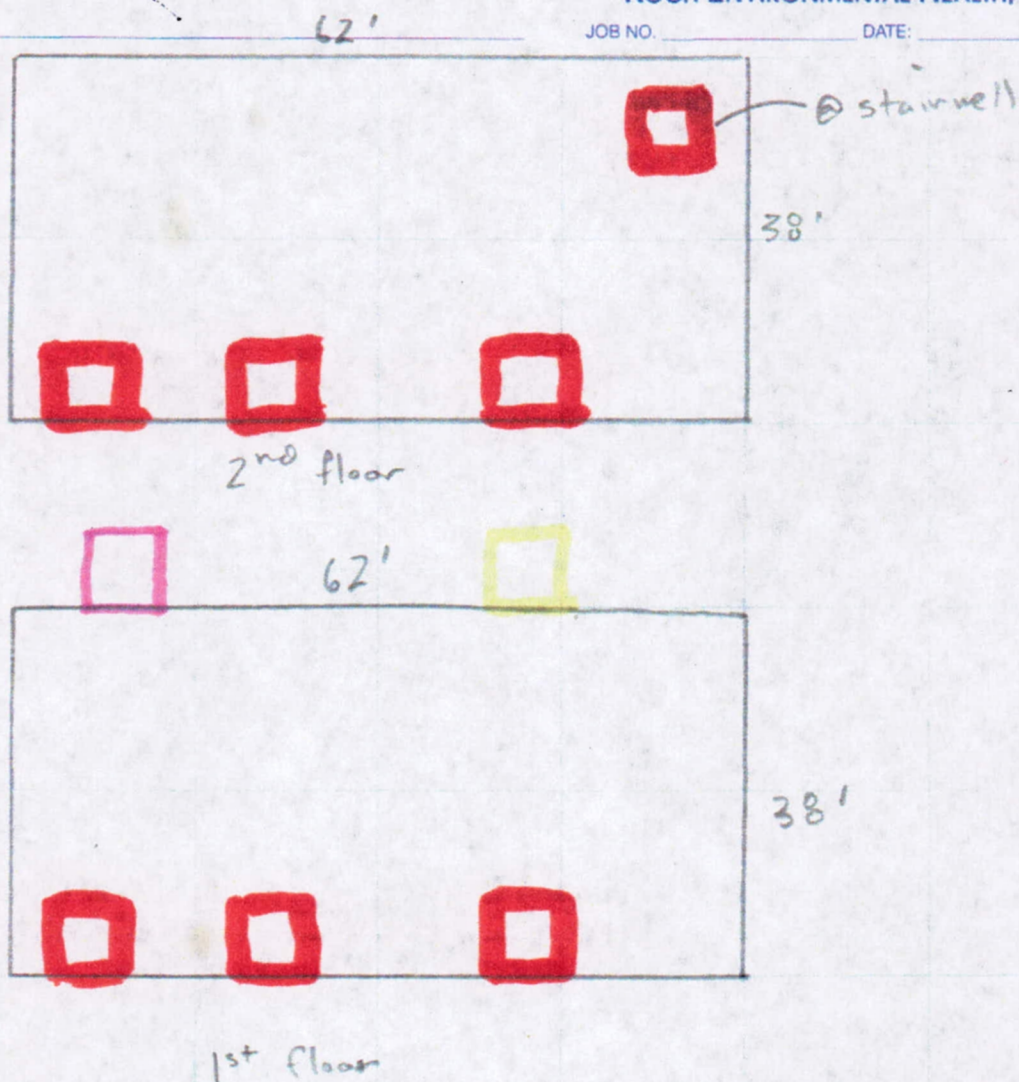
SUBJECT: West Attached 2 story
Office Building





KOCH ENVIRONMENTAL HEALTH, INC.


JOB NO. _____

DATE: _____



 = NAM

 = Exit

 = Entry

$$\frac{28,272 \text{ ft}^3 (\text{per floor})}{1400 \text{ cfm}} \left| \frac{4 \Delta}{60 \text{ min}} \right| \times 1.1 = 2.96 \Rightarrow 3 \text{ NAM}_5 (\text{per floor})$$

NOT TO SCALE